

REMARKS

Claims 32–88 are pending.

Applicants thank the Examiner for indicating that claims 39, 42, 48–52, 55–64, 67–76, 80–84, and 87–88 would be allowable if rewritten in independent form. Applicant has amended the claims accordingly. Claims 72, 77, and 78 have been amended to correct informalities. Support for the claim amendments may be found, for example, in the previously filed claims. No new matter has been added.

Objection to claims under 35 U.S.C. § 112

The Examiner objected to claim 78 because of an informality. Applicants have amended the claim accordingly.

Rejection of claims under 35 U.S.C. § 102

Claims 32–37 and 78 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,500,694 to Enquist (“Enquist”).

Enquist appears to disclose a device integration method and integrated device. *See* abstract. In an embodiment, a film 12 is deposited on a substrate. The film 12 preferably has a good thermal conductivity and a high dielectric constant, with a surface roughness of $\leq 5 \text{ \AA}$. *See* column 6, lines 32–45. The Examiner apparently considers film 12 to be equivalent to the strained layer having an average surface roughness of no more than approximately 2 nm, as recited in independent claim 32. Enquist, however, is completely silent about the strain of film 12. Indeed, there is no suggestion that film 12 need even be *amenable* to strain, much less any teaching that strain is desirable or how it may be imparted. For example, Enquist mentions SiO₂ as a suitable material for layer 12; SiO₂ is amorphous, and the notion of strain is therefore inapplicable. In the absence of any suggestion relating to strain or any teaching as to how strain might be achieved, Enquist cannot anticipate claim 32.

Applicants submit that independent claim 32 and claims dependent therefrom are patentable over the cited art.

Claims 32, 38, 40–41, 44–47, 54, 65, 77, 79, and 85–86 are rejected under 35 U.S.C. 102(b) as being anticipated by (“Matsushita”). Matsushita discloses SOI substrate fabrication methods. *See* abstract. Matsushita appears to disclose a Si active layer 5 having a surface roughness, after planarization, of 0.1 to 0.2 nm. *See* Figure 14 and column 6, lines 38–42. The Examiner apparently considers Si active layer 5 to be strained. We respectfully submit, however, that one of skill in the art would recognize that the Si active layer 5 is not strained. The disclosed layer structure includes a Si substrate 2, a Si buffer layer 3, a strained $\text{Si}_{1-x}\text{Ge}_x$ layer 4, and Si active layer 5. *See* column 5, lines 46–67 and column 6, lines 46–54. The $\text{Si}_{1-x}\text{Ge}_x$ layer 4 is strained to the lattice constant of the underlying Si material. The overlying Si active layer 5 has the same lattice constant as the underlying Si material and, therefore, is not strained.

In summary, the only strained layer that appears to be disclosed by Matsushita is the underlying $\text{Si}_{1-x}\text{Ge}_x$ layer 4. This strained layer has a large unevenness. *See* column 6, lines 27–29 and lines 37–39. Accordingly, Matsushita does not appear to teach or suggest a strained layer having a surface roughness of no more than approximately 2 nm, as recited in independent claim 32.

Applicants submit that independent claim 32 and claims dependent therefrom are patentable over the cited art.

Rejection of claims under 35 U.S.C. § 103

Claim 53 is rejected under 35 U.S.C. § 103 as being obvious in view of Enquist. Applicants submit that claim 53 is patentable for at least the reason claim 32, from which it depends, is patentable.

CONCLUSION


A check for \$2000 for the extra claim fee is enclosed. Applicant believes that no other fee is due for filing of this amendment. However, if any fee is due, please charge said fee occasioned by this paper to our Deposit Account No. 07-1700.

If the Examiner believes that a telephone conversation with Applicant's attorney would expedite allowance of this application, the Examiner is cordially invited to call the undersigned attorney at (617) 570-1806.

Respectfully submitted,

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